

REPLACED BY
ART 34 AINDT

40

Claims

1. A biologically active complex comprising alpha-lactalbumin or a variant of alpha-lactalbumin (α -lactalbumin) which is in the apo folding state, or a fragment of either of any of these, and a cofactor which stabilises the complex in a biologically active form, provided that any fragment of α -lactalbumin or a variant thereof comprises a region corresponding to the region of α -lactalbumin which forms the interface between the alpha and beta domains, and further provided that when the complex comprises native α -lactalbumin, the cofactor is other than C18:1:9 cis fatty acid.
2. A complex according to claim 1 wherein the cofactor is a cis C18:1:9 or C18:1:11 fatty acid or a different fatty acid with a similar configuration.
3. A biologically active complex according to claim 1 which is obtainable by combining
- (i) a cis C18:1:9 or C18:1:11 fatty acid or a different fatty acid with a similar configuration; and
- (ii) α -lactalbumin from which calcium ions have been removed, or a variant of α -lactalbumin from which calcium ions have been removed or which does not have a functional calcium binding site; or a fragment of either of any of these, provided that any fragment comprises a region corresponding to the region of α -lactalbumin which forms the interface between the alpha and beta domains, and further provided that when (ii) is alpha-lactalbumin, (i) is other than C18:1:9 cis fatty acid.
4. A complex according any one of claims 1 to 3 which includes a variant of α -lactalbumin in which the calcium binding site has been modified so that the affinity for calcium is reduced, or it is no longer functional.

35

5. A complex according to claim 4 wherein the variant as a mutation at one of the K79, D82, D84, D87 and D88.
6. A complex according to claim 4 wherein the modification is at D87 which includes a variant of α -lactalbumin having a D87A or D87N variants.
7. A complex according to any one of the preceding claims which comprises a fragment of α -lactalbumin or a variant thereof, and where the fragment includes the entire region from amino acid 34-86 of the native protein.
8. A complex according to any one of the preceding claims wherein the α -lactalbumin is human or bovine α -lactalbumin or a variant of either of these.
9. A complex according to claim 8 wherein the α -lactalbumin is human α -lactalbumin.
10. A complex according to claim 8 wherein the α -lactalbumin is mutant bovine α -lactalbumin which includes an S70R mutation.
11. A complex according to any one of the preceding claims which further comprises calcium ions.
12. A pharmaceutical composition comprising a complex according to any one of the preceding claims in combination with a pharmaceutically acceptable carrier.
13. A method for treating cancer which comprises administering to cancer cells a complex according to any one of claims 1 to 11 or a composition according to claim 12.

14. A method for treating bacterial infections which comprises administering to a patient in need thereof, a complex or a composition as described above.